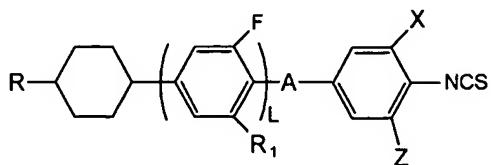


**WHAT IS CLAIMED IS:**

1. A nematic liquid crystal composition comprising a nematic liquid crystal compound represented by the following Chemical Formula 1:

Chemical Formula 1



wherein: R is  $C_nH_{2n+1}O$ ,  $C_nH_{2n+1}$ , or  $C_nH_{2n-1}$ , wherein n is an integer of 1 to 15;  $R_1$  is H or F; L is an integer of 0 to 2; A is a single bond,  $-CH_2CH_2-$ ,  $-COO-$ ,  $-C=C-$ , or  $-C\equiv C-$ ; X is H, F, Cl, or Br; Y is H, F, Cl, or Br; and at least one of X and Z is F.

10 2. The nematic liquid crystal composition according to Claim 1, which comprises:

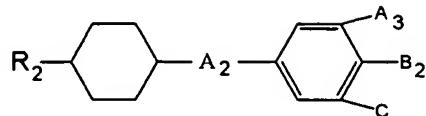
a) 1 to 80 wt% of the nematic liquid crystal compound represented by Chemical Formula 1; and

b) 20 to 99 wt% of one or more liquid crystal compounds selected from 15 a group consisting of compounds represented by the following Chemical Formula 2, Chemical Formula 3, and Chemical Formula 4:

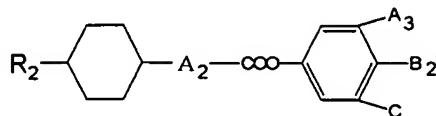
Chemical Formula 2



Chemical Formula 3



Chemical Formula 4

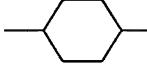
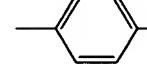
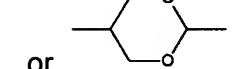


5

wherein:

each of R<sub>2</sub> is C<sub>n</sub>H<sub>2n+1</sub> or C<sub>n</sub>H<sub>2n</sub>, independently or simultaneously,

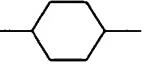
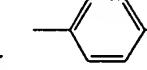
wherein n is an integer of 1 to 15,;

each of A<sub>1</sub> and B<sub>1</sub> is  ,  , or  ,

independently or simultaneously;

10

X<sub>1</sub> is F, CF<sub>3</sub>, OCF<sub>3</sub>, CH=CF<sub>2</sub>, or OCH=CF<sub>2</sub>;

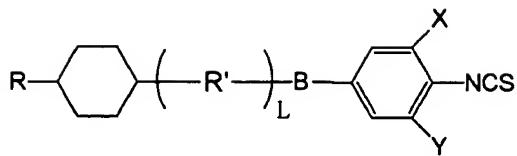
each of A<sub>2</sub> is  or  , independently or simultaneously; and

each of A<sub>3</sub>, B<sub>2</sub> and C is F, CF<sub>3</sub>, OCF<sub>3</sub>, or H, independently or simultaneously.

15

3. A nematic liquid crystal composition comprising a nematic liquid crystal compound represented by the following Chemical Formula 5:

Chemical Formula 5



wherein: R is  $\text{C}_n\text{H}_{2n+1}\text{O}$ ,  $\text{C}_n\text{H}_{2n+1}$ , or  $\text{C}_n\text{H}_{2n-1}$ , wherein n is an integer of 1

to 15; R' is  or ; L is an integer of 0 to 2; B is a single bond,  $-\text{CH}_2\text{CH}_2-$ ,  $-\text{COO}-$ ,  $-\text{C}=\text{C}-$ , or  $-\text{C}\equiv\text{C}-$ ; each of X and Y is H, F, Cl, or

5 Br, independently or simultaneously; and at least one of X and Y is F.

4. The nematic liquid crystal composition according to Claim 3, which comprises:

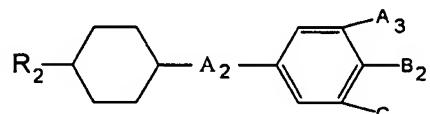
a) 1 to 80 wt% of the nematic liquid crystal compound represented by Chemical Formula 5; and

10 b) 20 to 99 wt% of one or more liquid crystal compounds selected from a group consisting of the compounds represented by the following Chemical Formula 2, Chemical Formula 3, and Chemical Formula 4:

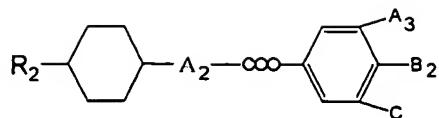
Chemical Formula 2

$\text{R}_2\text{-A}_1\text{-B}_1\text{-X}_1$

15 Chemical Formula 3



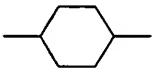
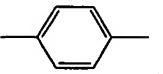
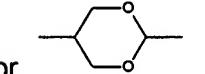
Chemical Formula 4



wherein:

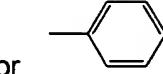
each of  $R_2$  is  $C_nH_{2n+1}$  or  $C_nH_{2n}$ , independently or simultaneously,

wherein  $n$  is an integer of 1 to 15,;

5 each of  $A_1$  and  $B_1$  is , , or ,

independently or simultaneously;

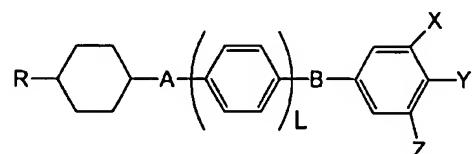
$X_1$  is F,  $CF_3$ ,  $OCF_3$ ,  $CH=CF_2$ , or  $OCH=CF_2$ ;

each of  $A_2$  is  or , independently or simultaneously; and

10 each of  $A_3$ ,  $B_2$ , and  $C$  is F,  $CF_3$ ,  $OCF_3$ , or H, independently or simultaneously.

5. A nematic liquid crystal composition comprising a nematic liquid crystal compound represented by the following Chemical Formula 6:

Chemical Formula 6



15

wherein:  $R$  is  $C_nH_{2n+1}O$ ,  $C_nH_{2n+1}$ ,  $C_nH_{2n+1}S$ , or  $C_nH_{2n-1}$ , wherein  $n$  is an integer of 1 to 15;  $A$  is phenyl, phenyl-cyclohexane, cyclohexane-phenyl, or a

single bond (-); L is 0 or 1; B is a single bond (-),  $\text{CH}_2\text{CH}_2$ , -COO-, -C=C-, or -C≡C-; X is H, F, Cl, or Br; Y is NCS, SCN, or F; Z is H, F, Cl, or Br; at least one of X and Z is F; and at least one of A and B is not a single bond.

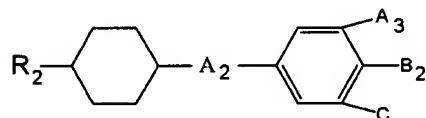
6. The nematic liquid crystal composition according to Claim 5, which  
5 comprises:

a) 1 to 80 wt% of the nematic liquid crystal compound represented by  
Chemical Formula 6; and  
b) 20 to 99 wt% of one or more liquid crystal compounds selected from  
a group consisting of the compounds represented by the following Chemical  
10 Formula 2, Chemical Formula 3, and Chemical Formula 4:

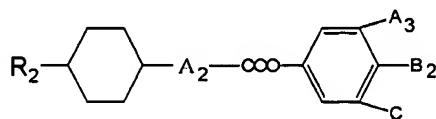
Chemical Formula 2

$\text{R}_2\text{-A}_1\text{-B}_1\text{-X}_1$

Chemical Formula 3



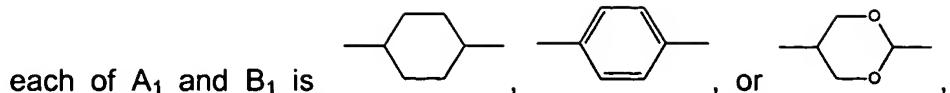
15 Chemical Formula 4



wherein:

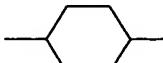
each of  $\text{R}_2$  is  $\text{C}_n\text{H}_{2n+1}$ , or  $\text{C}_n\text{H}_{2n}$ , independently or simultaneously,

wherein n is an integer of 1 to 15.;



independently or simultaneously;

X<sub>1</sub> is F, CF<sub>3</sub>, OCF<sub>3</sub>, CH=CF<sub>2</sub>, or OCH=CF<sub>2</sub>;

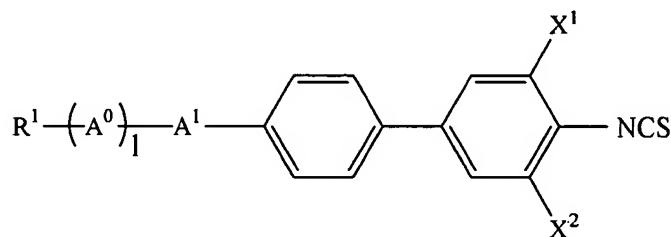
5 each of A<sub>2</sub> is  or  , independently or

simultaneously; and

each of A<sub>3</sub>, B<sub>2</sub> and C is F, CF<sub>3</sub>, OCF<sub>3</sub>, or H, independently or simultaneously.

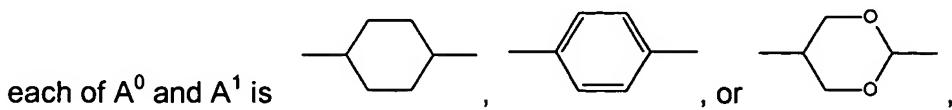
7. A nematic liquid crystal composition comprising a nematic liquid  
10 crystal compound represented by the following Chemical Formula 7:

Chemical Formula 7



wherein:

R<sup>1</sup> is a C<sub>1</sub> to C<sub>12</sub> alkyl, wherein one or two separated CH<sub>2</sub> groups can  
15 be substituted by an oxygen atom, -CO-, -OCO-, -COO-, or -C=C- group;



independently or simultaneously;

each of  $X^1$  and  $X^2$  is F, Cl, CN, or NCS, independently or simultaneously; and

$I$  is 0 or 1.

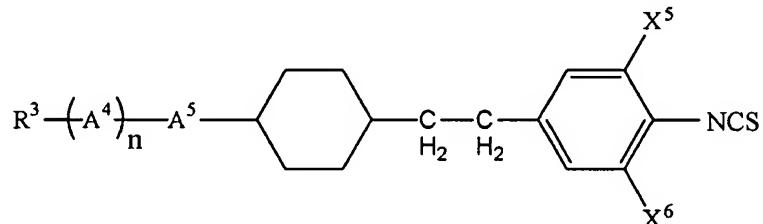
5 8. The nematic liquid crystal composition according to Claim 7, which comprises:

a) 20 to 80 wt% of the nematic liquid crystal compound represented by Chemical Formula 7; and

b) 20 to 80 wt% of a nematic liquid crystal compound represented by

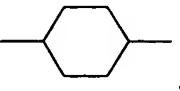
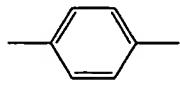
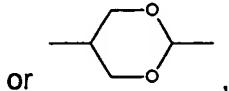
10 the following Chemical Formula 8:

Chemical Formula 8



wherein:

$R^3$  is a  $C_1$  to  $C_{12}$  alkyl; wherein one or two separated  $CH_2$  groups can  
15 be substituted by an oxygen atom, -CO-, -OCO-, -COO-, or -C=C- group;

each of  $A^4$  and  $A^5$  is  ,  , or  ,

independently or simultaneously;

each of  $X^5$  and  $X^6$  is F, Cl, CN, or NCS, independently or simultaneously; and

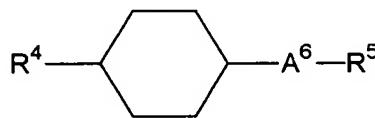
n is 0 or 1.

9. The nematic liquid crystal composition according to Claim 7, which  
5 further comprises:

c) one or more compounds selected from a group consisting of the nematic liquid crystal compounds represented by the following Chemical Formula 9, Chemical Formula 10, and Chemical Formula 11:

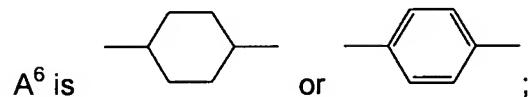
Chemical Formula 9

10



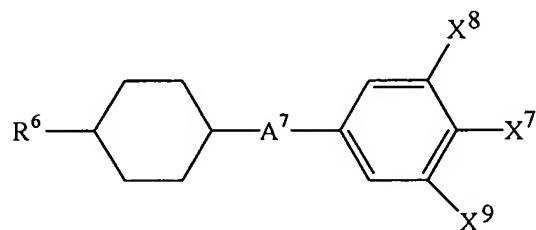
wherein:

R<sup>4</sup> is a C<sub>1</sub> to C<sub>12</sub> alkyl, and R<sup>5</sup> is a C<sub>1</sub> to C<sub>12</sub> alkyl or alkoxy; and



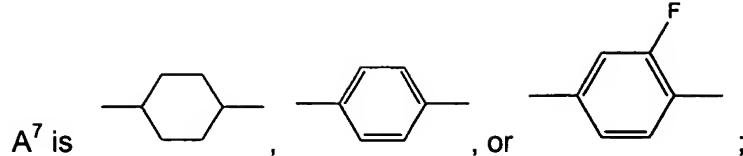
Chemical Formula 10

15



wherein:

$R^6$  is a  $C_1$  to  $C_{12}$  alkyl;

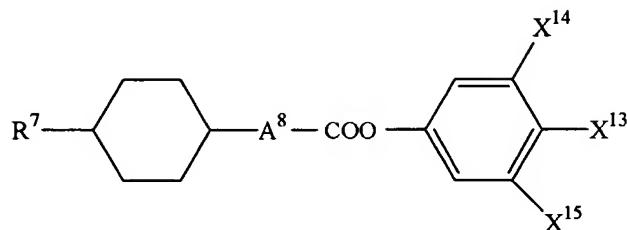


$X^7$  is H, F, Cl, or  $OCH_3$ ; and

5 each of  $X^8$  and  $X^9$  is H, F, or Cl, independently or simultaneously;

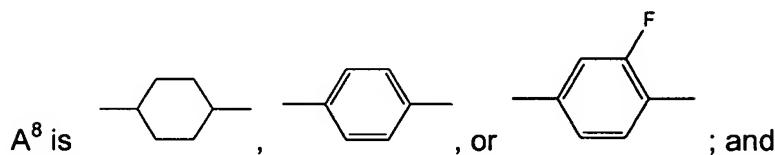
and

Chemical Formula 11



wherein:

10 Here,  $R^7$  is a  $C_1$  to  $C_{12}$  alkyl;



each of  $X^{10}$ ,  $X^{11}$  and  $X^9$  is H, F, or Cl, independently or simultaneously.

10. A liquid crystal display comprising the nematic liquid crystal composition according Claim 1.

15 11. The liquid crystal display according to Claim 10, which is an active

matrix type TN (twist nematic), STN, OCB, TFT-TN mode liquid crystal display, or an IPS (in plane switching) mode or FFS (fringe field switching) mode liquid crystal display.

12. The liquid crystal display according to Claim 10, which is an AOC  
5 or COA liquid crystal display, or an OCB (optically compensated bend) mode liquid crystal display.

13. A liquid crystal display comprising the nematic liquid crystal composition according to Claim 3.

14. The liquid crystal display according to Claim 13, which is an active  
10 matrix type TN (twist nematic), STN, OCB, TFT-TN mode liquid crystal display, or an IPS (in plane switching) mode or FFS (fringe field switching) mode liquid crystal display.

15. The liquid crystal display according to Claim 13, which is an AOC or COA liquid crystal display, or an OCB (optically compensated bend) mode  
15 liquid crystal display.

16. A liquid crystal display comprising the nematic liquid crystal composition according to Claim 5.

17. The liquid crystal display according to Claim 16, which is an active  
matrix type TN (twist nematic), STN, OCB, TFT-TN mode liquid crystal display,  
20 or an IPS (in plane switching) mode or FFS (fringe field switching) mode liquid

crystal display.

18. The liquid crystal display according to Claim 16, which is an AOC or COA liquid crystal display, or an OCB (optically compensated bend) mode liquid crystal display.

5 19. A liquid crystal display comprising the nematic liquid crystal composition according to Claim 7.

20. The liquid crystal display according to Claim 19, which is an active matrix type TN (twist nematic), STN, OCB, TFT-TN mode liquid crystal display, or an IPS (in plane switching) mode or FFS (fringe field switching) mode liquid 10 crystal display.

21. The liquid crystal display according to Claim 19, which is an AOC or COA liquid crystal display, or an OCB (optically compensated bend) mode liquid crystal display.